

Claims

1. A method of preparing high quality homogenous slow-release organic-base fertilizer comprising:

a. preparing a liquid concentrate comprising one or more plant nutrient(s), one or more beneficial microbe(s), one or more organic compound(s), one or more penetrant(s), and/or one or more other soil and plant additive(s), or any combinations thereof; and

b. adding the liquid concentrate to at least one organic-base byproduct by spraying, injecting, pouring or otherwise adding the liquid concentrate to at least one organic-base byproduct; or

c. adding at least one dry soluble plant nutrient, one or more beneficial microbe(s), one or more organic compound(s), one or more penetrant(s), and/or one or more other soil and plant additive(s), or any combinations thereof to at least one organic base byproduct.

2. The method of Claim 1, wherein a dry soluble plant nutrient, and/or organic compounds or a combination of dry soluble plant nutrients and/or organic compounds is added and mixed with the organic-base byproducts containing 70% to 90% moisture, prior to their entry into a rotary granulator/dryer.

3. The method of Claim 1, wherein said organic-base byproducts contain 70% to 90% moisture.

4. The method of Claim 1, wherein said fertilizer is mixed in a rotary granulator/dryer.

5. The method of Claim 1, wherein said liquid concentrate is added to the organic-base byproduct prior to their entry into the rotary granulator/dryer.

6. The method of Claim 1, wherein said liquid concentrate is added to the organic-base byproduct when said organic-base byproduct is in said rotary granulator/dryer.

7. The method of Claim 1, wherein said liquid concentrate is added to said organic base byproduct after said organic base byproduct exits said rotary granulator/dryer.

8. The method of Claim 1, wherein said liquid concentrate is added to said organic base byproduct as it enters said rotary granulator/dryer.

9. The method of Claim 1, wherein said liquid concentrate is added to said organic base byproduct in said rotary granulator/dryer.

10. The method of Claim 1, further comprising the addition of water soluble and/or extended release coatings.

11. The method of Claim 1, wherein said plant nutrient can be nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), iron (Fe), zinc (Zn), manganese (Mn), copper (Cu), and boron (B), or any combination thereof; said dry soluble plant nutrient comprises ammonium sulfate, potassium nitrate, potassium phosphate, potassium sulfate, or any combination thereof; said beneficial microbe can be bacterial, fungal, viral, or any combination thereof; said organic compound can be biosolids, humic acid, fulvic acid, plant extract, seaweed extract, kelp extract, extracts of other plant materials, or any combination thereof; said penetrant comprises one or more non-ionic surfactant(s), one or more wetting agent(s), one or more detergent based surfactant(s), one or more silicone(s), and/or one or more organo-silicone(s) or any combination thereof; said other soil and plant additives comprise water trapping agents, zeolites, natural enzymes, growth hormones, gibberellins, gibberellic acid, and weed and/or pest control agents, ascaricides, molluskicides, insecticides, fungicides, nematocides, or any combinations thereof; and one or more organic base byproduct(s) selected from the group consisting of biosolids, activated sludge, municipal compost, animal manures, composted organic byproducts, processed animal body and vegetable products, blood meal, feather meal, cottonseed meal, ocean kelp meal, fish fertilizers, fish emulsions, and fish meal.

12. The method of Claim 1, wherein said method produces fertilizers comprising nitrogen, phosphorus, and potassium (N-P-K) percentages (by weight) of about 6-1-0, 7-1-0, 8-1-0, 9-1-0, 10-1-0, 12-1-0, 4-2-4, or 6-2-4.

✓ 13. A high quality homogenous slow-release organic-base fertilizer composition comprising:

a. at least one organic base byproduct; and

b. one or more plant nutrient(s), one or more beneficial microbe(s), one or more organic compound(s), one or more penetrant(s), and/or one or more other soil and plant additive(s), or any combination thereof; or

c. at least one dry soluble plant nutrient, one or more beneficial microbe(s), one or more organic compound(s), one or more penetrant(s), and/or one or more other soil and plant additive(s), or any combination thereof.

14. The high quality homogenous slow-release organic-base fertilizer composition of Claim 13, wherein said fertilizer is between 20 and 200 mesh.

15. The high quality homogenous slow-release organic-base fertilizer composition of Claim 13, further comprising the addition of water soluble and/or extended release coatings.

16. The high quality homogenous slow-release organic-base fertilizer composition of Claim 13, wherein said plant nutrient can be nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), iron (Fe), zinc (Zn), manganese (Mn), copper (Cu), and boron (B), or any combination thereof; said dry soluble plant nutrient comprises ammonium sulfate, potassium nitrate, potassium phosphate, potassium sulfate, or any combination thereof; said beneficial microbe can be bacterial, fungal, viral, or any combination thereof; said organic compound can be biosolids, humic acid, fulvic acid, plant extract, seaweed extract, kelp extract, extracts of other plant materials, or any combination thereof; said penetrant comprises one or more non-ionic surfactant(s), one or more wetting agent(s), one or more detergent based surfactant(s), one or more silicone(s), and/or one or more organo-silicone(s), or any combination thereof; said other soil and plant additives comprising water trapping agents, zeolites, natural enzymes, growth hormones, gibberellins, gibberellic acid, and weed and/or pest control agents, ascaricides, molluskicides, insecticides, fungicides, nematocides, or any combinations thereof; and one or more organic-base byproduct(s) selected from the group consisting of biosolids,

activated sludge, municipal compost, animal manures, composted organic byproducts, processed animal body and vegetable products, blood meal, feather meal, cottonseed meal, ocean kelp meal, fish fertilizers, fish emulsions, and fish meal.

17. The high quality homogenous slow-release organic-base fertilizer composition of Claim 13, wherein said fertilizer contains one or more penetrant(s) selected from the group consisting of polymeric polyoxyalkylenes, allinol, nonoxynol, octoxynol, oxycastrol, oxysorbic polyoxyethylated sorbitol fatty-acid esters (TWEEN), thalestol, polyethylene glycol octylphenol ether (TRITON), silicone (SYLGARD or SILWET L-77), and silicone/surfactant blends (KINETIC or HERBEX).

18. The high quality homogenous slow-release organic-base fertilizer composition of Claim 13, wherein said fertilizers comprises (by weight) up to 30% nitrogen; up to 10% phosphorus; up to 30% potassium; up to 10% calcium; up to 5% magnesium; up to 5% iron; up to 0.05% zinc; up to 0.5% manganese; up to 0.05% copper; up to 0.01% boron, or any combination thereof.

19. The high quality homogenous slow-release organic-base fertilizer composition of Claim 13, wherein said fertilizer comprises fertilizing amounts of nitrogen, phosphorus, and potassium (N-P-K).

20. The high quality homogenous slow-release organic-base fertilizer composition of Claim 19, wherein said fertilizer provides N-P-K percentages (by weight) of about 6-1-0, 7-1-0, 8-1-0, 9-1-0, 10-1-0, 12-1-0, 4-2-4, or 6-2-4.

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